

- Application No. 10/502,055  
Reply to Office Action of May 22, 2007

## REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 13-16 are pending in the present application. No claims are amended, canceled or added by the present response.

In the outstanding Office Action, Claims 13-16 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 13-16 were rejected under 35 U.S.C. § 102(b) as unpatentable over Rice et al. (*Journal of the Optical Society of America*, page 7 587-766, herein “Rice”), both of which are respectfully traversed for the following reasons.

The outstanding Office Action rejects Claims 13-16 under 35 U.S.C. § 112, second paragraph because it is not clear whether the beam pumped into the rod or the beam output from the rod is less than the rod. Applicants disagree with this statement and believe that Claim 13 clearly recites the beam pumping into the rod and propagating through the rod is less than the rod, as disclosed in the specification, for example, at page 12, lines 3-5. Although the features from the specification are not imported into the claim language, the Office has to interpret the claims in the context of the specification and not in vacuum (see MPEP 2111.01 II).

Further, the outstanding Office Action indicates in the paragraph bridging pages 2 and 3 that it is not clear what an equi-axis crystal equivalent is. Applicants note that an equi-axis crystal system is well known in the art, see for example U.S. Patent No. 6,334,891.

Finally, in the same paragraph, the outstanding Office Action states that there is insufficient “means plus function” structural relationship between the elements. Applicants note that the claims are not written in means plus function language and thus, this statement it is not understood.

Accordingly, Applicants respectfully request that this rejection be withdrawn.

The rejection of Claims 13-16 under 35 U.S.C. § 102(b) as unpatentable over Rice is respectfully traversed for the following reasons.

Briefly recapitulating, Claim 13 is directed to a solid-state laser that includes a (110)-cut crystalline rod belonging to an equi-axis crystal system. The rod has a radius  $r_0$  and the laser is operable to cause a beam of radius  $r_a$  to propagate through the rod.  $r_a$  is smaller than  $r_0$ .

Claim 13 positively recites that the crystalline rod has a (110)-cut. The outstanding Office Action states that the rod disclosed in Rice is a (100)-cut crystalline rod, and without making any further statement, the outstanding Office Action asserts that the (100)-cut crystalline rod of Rice anticipates the claimed (110)-cut crystalline rod. The outstanding Office Action does not present any reason or explanation why the (100)-cut crystalline rod of Rice is equivalent to the claimed (110)-cut crystalline rod.

The theory behind the device of Rice was discussed in the specification, for example, at page 9, line 4, to page 11, line 11 and the specification specifically indicates that the theory of Rice includes at least two mistakes and the device of Claim 13 fixed those two mistakes, see for example the specification at page 11, lines 16-19, and at page 12, line 24 to page 13, line 2.

More specifically, Rice concludes, as shown in his Figure 3, that an amount of the depolarization at the limit of high absorption power area is independent of a rod direction, which includes the two mistakes. One of the mistakes is that Rice took  $\Theta = \Phi$  in any plane, which is true only for the (111)-plane and which is not true for the claimed (110)-plane.

The second mistake is that the value of  $\Omega$  on the respective planes is fixed in Rice. However, although the  $\Omega$  value does not vary on the (111)-cut and (100)-cut planes, the value of  $\Omega$  depends with the radius of the rod on the (110)-cut plane, and thus, the correct value of  $\Omega$  cannot be obtained based on Rice's theory for the claimed (110)-cut plane.

In other words, the claimed (110)-cut plane and the (100)-cut plane of Rice are different and thus, the 102(b) rejection based on Rice is improper because, as noted at MPEP 2131, each claim limitation must be shown in the applied art for anticipation.

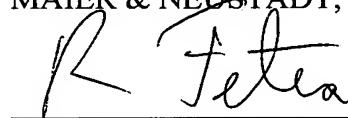
By noting the above mistakes in Rice, the claimed (110)-cut rod advantageously reduces a depolarization by having the radius of the beam smaller than the radius of the rod as specifically disclosed, for example, in the specification at page 11, lines 16-19.

Accordingly, it is respectfully submitted that independent Claim 13 and each of the claims depending therefrom patentably distinguish over Rice.

Consequently, in light of the above discussion, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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